UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/607,060	SUZUKI, SHINSUKE
Office Action Summary	Examiner	Art Unit	
	IAN N. MOORE	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>18 September 2008</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>4 and 16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>4,16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's request for reconsideration of the finality of the rejection of the last Office

action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

2.   Applicant's arguments with respect to claims 4 and 16 have been considered but are moot

in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boers (US

20040022244A1) in view of Jain (US 20030079040A1) and further in view of Li (US

6,597,703).

        Regarding Claim 4, Boers discloses packet forwarding equipment (see FIG. 1, 2a-b.

multicast network device, MND, (i.e. Multicast Router) 114 (e); see page 2, paragraph 29) for

connecting multicast client nodes (see FIG. 1,2, multiple hosts 124; see page 2, paragraph 18; see

page 3, paragraph 35) and a multicast network (see FIG. 1,2a, multicast network 100; see page 2,

paragraph 27) including at least one multicast source server (see FIG. 1, multicast source/server

102(a); see page 1, paragraph 6; see page 3, paragraph 31-32), comprising:

a translation unit (see FIG. 2a, a combined mapping system of messaging engine 122,

SSM mapping engine 118) a first request of joining or leaving a multicast group (see FIG. 2a,

mapping/translating host membership report 204 which indicates to become a member of a

multicast group (G); see page 2, paragraph 31; see page 3, paragraph 36-43) which is sent from

one of said multicast client nodes that cannot designate an address of a multicast source server of

the multicast group (see FIG. 2a, which is transmitted by a host 124 that cannot assign/designate

a multicast source/server address 102(a); see page 2, paragraph 34; see page 3, paragraph 31-44;

see page 1, paragraph 6), into a second request of joining or leaving the multicast group with

designating an address of multicast source server of the multicast group (see FIG. 2b,

mapping/translating received join report message to PIM (Sa,G) 210 join the multicast group G

with a source address Sa of the multicast group; see page 3, paragraph 36-44); and

an interface for transferring (see FIG. 2b, output port of the MND router 114(e)) the

second request to said multicast network (see page 3, paragraph 44; sending PIM (Sa, G) to

multicast network (e.g. towards source server 102(a));

a table (see FIG. 2a, a combined table/list system of memory 116 and SSM mapping

database 120 contains a table/list) comprised of a plurality of entries each indicating relations of

the address of the multicast group address (see page 3, paragraph 38-39, parameters

showing/indicating relation/mapping of SSM group address, G), and the address of the multicast

source corresponding to the address of the multicast group (see page 3, paragraph 39-40; to

source address, Sa , which corresponds to multicast group address (G)),

wherein when the first request of joining or leaving the multicast group is issued from the
multicast client node which does not have a function of designating the address of the multicast
source server (see FIG. 2b, when joining report message is send by host 124 that does not have a
function or know the assigning/allocating Sa address; see page 2, paragraph 31; see page 3,
paragraph 36-43), said table is searched for an entry including the address of the multicast group
to which said first join or leave request was sent (see page 3, paragraph 38-46; the combined
table/list system 116-120 is searched/queried/find for a parameter/entry that includes the
multicast group address (G) to which join report was sent), thereby to designate the address of
the multicast source server address indicated by the retrieved entry (see page 3, paragraph 43-44;
assigning/allocating a multicast source server 102(a) with a multicast source address Sa of
queried/find/retrieved parameter).

wherein the designated address of the multicast source server of the multicast group (see
FIG. 2b, source address, Sa, of source server 102(a)) is determined by the combined mapping
system 122-118) on the basis of an address of the multicast group to which said first request of
joining or leaving request was sent from said multicast client node (see page 3, paragraph 41-44;
Sa is computed according to the multicast group address to which join request was send from
host 124);

wherein when the address of the multicast source server of the entry retrieved from said
table, said first request is processed as a request for joining for leaving request of multicast group
(see page 3, paragraph 41-44; the source address S is retrieved from the combined table/list
system of memory 116 and SSM mapping database 120 contains a table/list (see FIG. 2), the join
request is processed as joining request of multicast group G).

Boers does not explicitly disclose a multicast client node "address" or "the address" of

the multicast client node.

However, Jain teaches packet forwarding equipment (see FIG. 1, switch 100) comprising:

the designated address of the source server of the multicast group (see page 4, paragraph 45;

page 5, paragraph 63; explicit source address SSM) is determined by the translation unit (see

FIG. 1, a combined system of forwarding engine 118, CPU 112 and CAM 106) on the basis of an

address of said one of said multicast client nodes (see page 2, paragraph 25; see page 3,

paragraph 30; see page 4, paragraph 45; page 5, paragraph 63; source address of multicast

sender/transmitter end station) and an address of the multicast group to which said first request

of joining or leaving was sent from said multicast client node (see page 4, paragraph 45-53; see

page 5, paragraph 62-67; destination address (i.e. which is the first three bytes of the group

address));

a table (see FIG. 2, Forwarding CAM 106 which contains Forwarding Information

(FID)) comprised of a plurality of entries each indicating relations of the address of the multicast

group (see page 4, paragraph 45; contains the data/entry each showing/indicating

matching/relation/corresponding multicast group address in multicast group address table), the

address of the multicast client node (see page 2, paragraph 25; see page 3, paragraph 30; see

page 4, paragraph 45; page 5, paragraph 63; source address of multicast sender/transmitter end

station in a FID table), and the address of multicast source (see page 4, paragraph 45; page 5,

paragraph 63; explicit source address SSM) corresponding to the address of multicast group (see

page 4, paragraph 45-53; see page 5, paragraph 62-67; maps/relates/corresponds to destination

address (i.e. which is the first three bytes of the group address)) and the address of the multicast

client node (see page 2, paragraph 25; see page 3, paragraph 30; see page 4, paragraph 45; page

5, paragraph 63; and source address of multicast sender/transmitter end station);

said table is searched for an entry including the address of the multicast client node which

issued said first request of joining or leaving (see page 2, paragraph 25; see page 3, paragraph

30; see page 4, paragraph 45-53; page 5, paragraph 63-67; FID table is searched/lookup for an

data including the source address of multicast sender/transmitter end station) and the address of

the multicast group to which said first request joining or leaving was sent (see page 4, paragraph

45; and multicast group address in multicast group address table to which request to join/prune

message has to be send), thereby to designate the address of the multicast source server indicated

by the retrieved entry (see page 2, paragraph 25; see page 3, paragraph 30; see page 4, paragraph

45-53; page 5, paragraph 63-67; allocating/assigning an explicit source server with explicit

source address SSM shows/indicates by the matched data).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "an address" of said multicast client node, as taught by Jain in

the system of Boers, so that it would forward multicast packets efficiently and quickly; see Jain

page 1, paragraph 11-12.

Neither Boers nor Jain explicitly discloses the entry retrieved from said table is "don't

care" and "an any-source multicast group which does not designate the address of a multicast

source server".

However, Li discloses wherein when the address of the multicast source address server

(see FIG. 6, S608-612; source address S of the multicast source; see col. 11, line 10-36; see col.

15, line 5-15) of the entry retrieved from said table (see FIG. 26, retrieved from the forwarding

table 2606; see col. 20, line 62 to col. 21, line 6) is "don't care" (see FIG. 20,S2002-2010; see

FIG. 21, S2102-2106; Source address S= * ; or default value address 0.0.0.0; note that when

source address is identified as "*" or "0.0.0.0"; see col. 17, line 35 to col. 18, line 65) , said first

request is processed as a request to join or leave of joining or leaving an any-source multicast

group which does not designate the address of a multicast source server (see FIG. 20,21,23, the

request is processed as a request of joining the multicast group where the source server address is

any unspecified/undesignated address "0.0.0.0", wild card source address "*", or default

undesignated source address; see col. 17, line 35 to col. 19, line 65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "don't care" and "an any-source multicast group which does

not designate the address of a multicast source server" as taught by Li, in the combined system of

Boers and Jain, so that it would reduce the number of multicast forwarding states in a multicast

routing device; see Li col. 2, line 25-35.

5.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boers and Jain,

and further in view of Basilier (US007061880B2) and Li (US 6,597,703).

       Regarding Claim 14, Boers discloses Boers discloses packet forwarding equipment (see

FIG. 1, 2a-b. multicast network device, MND, (i.e. Multicast Router) 114 (e); see page 2,

paragraph 29) adapted to be connected to multicast client nodes (see FIG. 1,2, multiple hosts

124; see page 2, paragraph 18; see page 3, paragraph 35) and a multicast network (see FIG. 1,2a,

multicast network 100; see page 2, paragraph 27) including at least one multicast source server

(see FIG. 1, multicast source/server 102(a); see page 1, paragraph 6; see page 3, paragraph 31-32), comprising:

a translation unit (see FIG. 2a, a combined mapping system of messaging engine 122, SSM mapping engine 118) a first request of joining or leaving a multicast group (see FIG. 2a, mapping/translating host membership report 204 which indicates to become a member of a multicast group (G); see page 2, paragraph 31; see page 3, paragraph 36-43) which is sent from one of said multicast client nodes (see FIG. 2a, which is transmitted by a host 124; see page 2, paragraph 34; see page 3, paragraph 31-44; see page 1, paragraph 6) into a source-specific type of request of joining or leaving a source-specific multicast group (see FIG. 2b, mapping/translating received join report message to source specific multicast (SSM) PIM (Sa,G) 210 join the SSM multicast group G with a source address Sa of the multicast group; see page 2, paragraph 27; see page 3, paragraph 36-44); and

an interface for transferring (see FIG. 2b, output port of the MND router 114(e)) the second request to said multicast network (see page 3, paragraph 44; sending PIM (Sa,G) to multicast network (e.g. towards source server 102(a)) ;

a table (see FIG. 2a, a combined table/list system of memory 116 and SSM mapping database 120 contains a table/list) comprised of a plurality of entries each indicating relations of the address of the multicast group address (see page 3, paragraph 38-39, parameters showing/indicating relation/mapping of SSM group address, G), and the address of the multicast source corresponding to the address of the multicast group (see page 3, paragraph 39-40; to source address, Sa , which corresponds to multicast group address (G)),

wherein an address of the multicast source server of the source-specific multicast group (see FIG. 2b, source address, Sa, of source server 102(a)) is determined by the combined mapping system 122-118) on the basis of an address of the multicast group to which said first request of joining or leaving request was sent from said multicast client node (see page 3, paragraph 41-44; Sa is computed according to the multicast group address to which join request was send from host 124);

wherein when the first request of joining or leaving the multicast group is issued from the multicast client node which does not have a function of designating the address of the multicast source server (see FIG. 2b, when joining report message is send by host 124 that does not have a function or know the assigning/allocating Sa address; see page 2, paragraph 31; see page 3, paragraph 36-43), said table is searched for an entry including the address of the multicast group to which said first join or leave request was sent (see page 3, paragraph 38-46; the combined table/list system 116-120 is searched/queried/find for a parameter/entry that includes the multicast group address (G) to which join report was sent), thereby to designate the address of the multicast source server address indicated by the retrieved entry (see page 3, paragraph 43-44; assigning/allocating a multicast source server 102(a) with a multicast source address Sa of queried/find/retrieved parameter);

wherein when the address of the multicast source server of the entry retrieved from said table, said first request is processed as a request for joining for leaving request of multicast group (see page 3, paragraph 41-44; the source address S is retrieved from the combined table/list system of memory 116 and SSM mapping database 120 contains a table/list (see FIG. 2), the join request is processed as joining request of multicast group G).

Boers does not explicitly disclose "an address" of said multicast client node.

However, Jain teaches packet forwarding equipment (see FIG. 1, switch 100) comprising:

the designated address of the source server of the multicast group (see page 4, paragraph 45;

page 5, paragraph 63; explicit source address SSM) is determined by the translation unit (see

FIG. 1, a combined system of forwarding engine 118, CPU 112 and CAM 106) on the basis of an

address of said one of said multicast client nodes (see page 2, paragraph 25; see page 3,

paragraph 30; see page 4, paragraph 45; page 5, paragraph 63; source address of multicast

sender/transmitter end station) and an address of the multicast group to which said first request

of joining or leaving was sent from said multicast client node (see page 4, paragraph 45-53; see

page 5, paragraph 62-67; destination address (i.e. which is the first three bytes of the group

address));

However, Jain teaches a table (see FIG. 2, Forwarding CAM 106 which contains

Forwarding Information (FID)) comprised of a plurality of entries each indicating relations of

the address of the multicast group (see page 4, paragraph 45; contains the data/entry each

showing/indicating matching/relation/corresponding multicast group address in multicast group

address table), the address of the multicast client node (see page 2, paragraph 25; see page 3,

paragraph 30; see page 4, paragraph 45; page 5, paragraph 63; source address of multicast

sender/transmitter end station in a FID table), and the address of multicast source (see page 4,

paragraph 45; page 5, paragraph 63; explicit source address SSM) corresponding to the address

of multicast group (see page 4, paragraph 45-53; see page 5, paragraph 62-67;

maps/relates/corresponds to destination address (i.e. which is the first three bytes of the group

address)) and the address of the multicast client node (see page 2, paragraph 25; see page 3,

paragraph 30; see page 4, paragraph 45; page 5, paragraph 63; and source address of multicast

sender/transmitter end station);

said table is searched for an entry including the address of the multicast client node which

issued said first request of joining or leaving (see page 2, paragraph 25; see page 3, paragraph

30; see page 4, paragraph 45-53; page 5, paragraph 63-67; FID table is searched/lookup for an

data including the source address of multicast sender/transmitter end station) and the address of

the multicast group to which said first request joining or leaving was sent (see page 4, paragraph

45; and multicast group address in multicast group address table to which request to join/prune

message has to be send), thereby to designate the address of the multicast source server indicated

by the retrieved entry (see page 2, paragraph 25; see page 3, paragraph 30; see page 4, paragraph

45-53; page 5, paragraph 63-67; allocating/assigning an explicit source server with explicit

source address SSM shows/indicates by the matched data).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to provide "an address" of said multicast client node, as taught by Jain in

the system of Boers, so that it would forward multicast packets efficiently and quickly; see Jain

page 1, paragraph 11-12.

Neither Boers nor Jain explicitly discloses "any-source type".

However, utilizing any-source type (ASM) multicast request is so well known and

establish in the art as RFC standards (i.e. RFC-1112 and RFC-3569) in order to improve the

combined system of Boers and Jain for the predictable result of compatibility and

interoperability. In particular, Basilier discloses utilizing any-source type (ASM) request for a

multicast group (see col. 4, line 29 to col.5, line 30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "any-source type" multicast request as taught by Basilier, in the combined system of Boers and Jain, so that it would provide efficient approach to establishing, coordinating and managing an end-to-end multicast service for communication systems; see Basilier col. 4, line 53-60.

Neither Boers, Jain nor Basilier explicitly discloses the entry retrieved from said table is "don't care" and "an any-source multicast group which does not designate the address of a multicast source server".

However, Li discloses wherein when the address of the multicast source address server (see FIG. 6, S608-612; source address S of the multicast source; see col. 11, line 10-36; see col. 15, line 5-15) of the entry retrieved from said table (see FIG. 26, retrieved from the forwarding table 2606; see col. 20, line 62 to col. 21, line 6) is "don't care" (see FIG. 20,S2002-2010; see FIG. 21, S2102-2106; Source address S= * ; or default value address 0.0.0.0; note that when source address is identified as "*" or "0.0.0.0"; see col. 17, line 35 to col. 18, line 65) , said first request is processed as a request to join or leave of joining or leaving an any-source multicast group which does not designate the address of a multicast source server (see FIG. 20,21,23, the request is processed as a request of joining the multicast group where the source server address is any unspecified/undesignated address "0.0.0.0", wild card source address "*", or default undesignated source address; see col. 17, line 35 to col. 19, line 65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide "don't care" and "an any-source multicast group which does not designate the address of a multicast source server" as taught by Li, in the combined system of

Boers, Jain and Basilier , so that it would reduce the number of multicast forwarding states in a

multicast routing device; see Li col. 2, line 25-35.

Conclusion

6.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to IAN N. MOORE whose telephone number is (571)272-3085.

The examiner can normally be reached on 9:00 AM- 6:00 PM.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

                                            Ian N. Moore
                                            Primary Examiner
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/Ian N. Moore/
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